

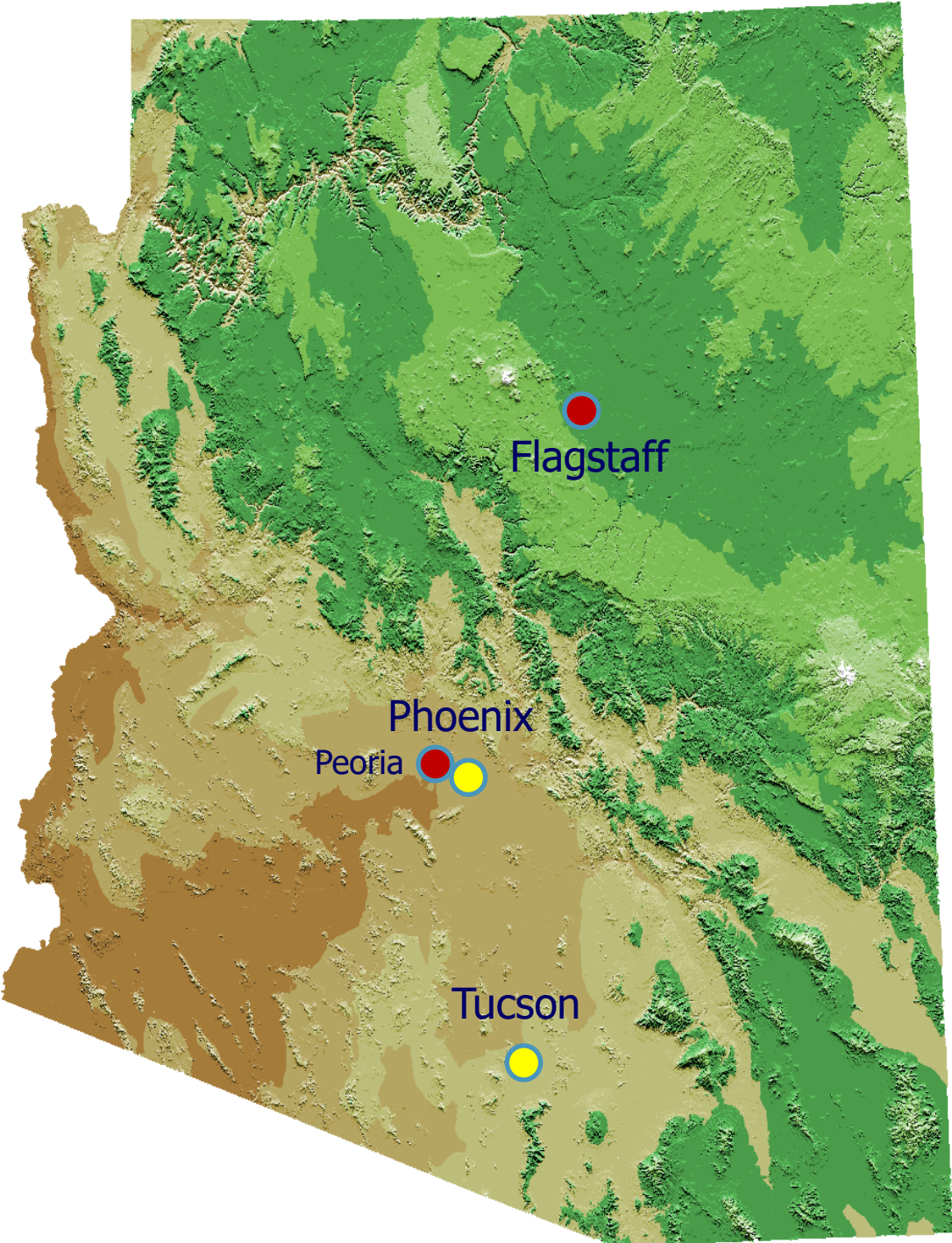
Connecting Land Use Planning with Water: *tools for consideration*



Bradley M. Hill, R.G., Director
Water Services
City of Flagstaff

National American Planning Association Conference
New Orleans, Louisiana
April 22, 2018





PEORIA

Founded 1885

Population – 164,200

Elevation – 1,135 feet

Suburb of metro Phoenix

FLAGSTAFF

Founded 1882

Population – 71,500

Elevation – 7,000 feet

Surrounded by:

Coconino National Forest

Adjacent to:

Grand Canyon N.P. / Walnut Cyn N.M.

Wupatki N.M. / Sunset Crater N.M.



Land Use
Planning

??

Water Resource
Planning



What Tools?

- Going beyond traditional *Supply Augmentation* or *Demand Management*
- 2 Case Studies: City's of Peoria & Flagstaff
 - Development of Council approved Water Policies
 - Land Use Management (Economic Value/gallon of water)
 - How to link growth, land use and water supplies

CASE EXAMPLE #1



- City Council asked to explore a process to allocate water for development differently than the current
1st come: 1st serve

Recommend one or more options of what this policy could look like come back and **seek** Council's direction



What Peoria Staff Did



2005 to 2007 - Established a X-Departmental Team:

City Manager's Office, Economic Development, Attorney's Office, Finance, Community Development, Public Works & Utilities

1. Developed Principles of Sound Water Management

Purpose - memorialize high-level policies on a variety of water related topics, Document will provide framework & guidance to staff when making complex & challenging decisions that impact Peoria's water supplies

2. Literature search — have others addressed water allocation for development differently than 1st come: 1st serve? In Arizona? Elsewhere around Country?



17 Policies created divided into 4 Categories



Categories

Regulatory

Planning

Relationships with Outside Agencies

Water Management

Highlights

Policy 4 Water Acquisition

Policy 5 Water Reclamation

Policy 6 ***Land Use Management***

Policy 14 Recharge & Recovery

Policy 15 Redundancy (supply & infrastructure)

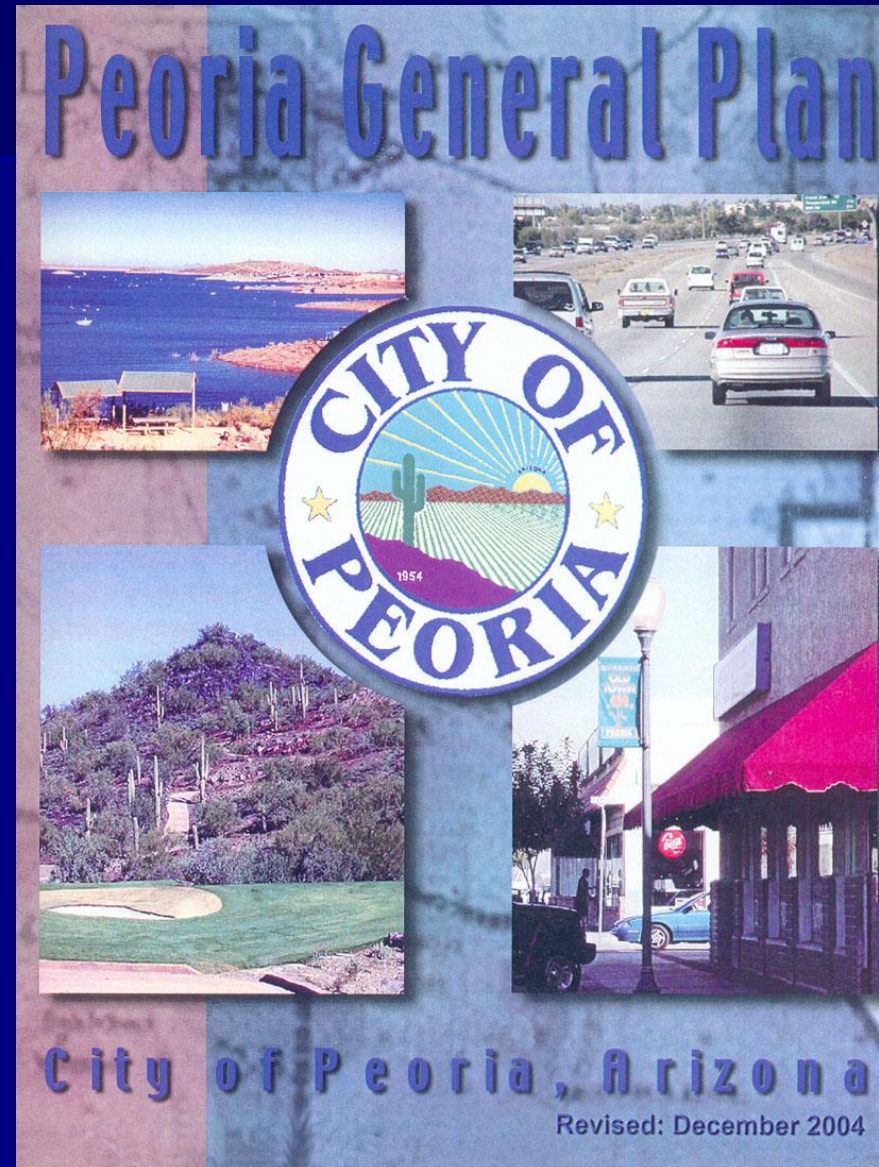


Land Use Management

Development is Guided
by the Voter Approved
General Plan - Arizona
State law

New Water Policy

Water allocation evaluation
criteria added for land use
changes?

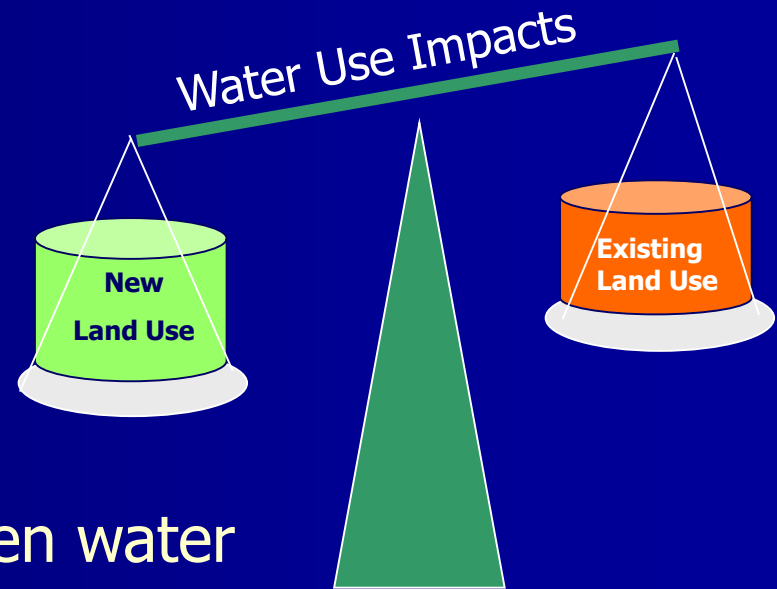


Policy Land Use Management



Changes in land use **may impact** the City's water resources portfolio

Purpose: is to create a nexus between water supply and land use by developing an **objective measurement tool**



Economic Value per Gallon

Components *(expressed in terms of \$/gallon)*



- a. Direct Economic Benefit: annualized tax revenue
(e.g., utility revenue, sales tax, etc.)
- b. Indirect Economic Benefit: annualized wages, job creation
employee purchasing & retention potential
- c. Commercial Development: value of buildings, equipment & revenues
- d. Cost to the City Costs to support the proposed development
(Police, Fire, O & M, etc...)
- e. Water Use: net unit of water per type of Existing v. Proposed
Land Use category



Land Use Management Policy



Economic Value/Gallon of Net Water Demand: simply

Revenues – Expenses / Water Use – Reclaimed Water Generated

$$((a+b+c)-d)/(e-r)$$



a & b: direct & indirect economic benefits

c: commercial development revenues/benefits

d: City costs & expenditures

e: water demand net unit of water (gallon)

r: reclaimed water returned for future use

How to Implement?



Amendments to the City's General Plan

- not at Zoning -

Add new criteria: *provide a metric to evaluate the relative comparison of economic value per gallon of water between the existing & proposed land uses*

P & Z Commission & City Council
will still maintain their flexibility in
decision making

Benefits to the Community that are
beyond economics



City of Peoria
Integrated Infrastructure Master Plan Update

PRINCIPLES OF SOUND WATER MANAGEMENT –
ECONOMIC VALUE OF WATER MODEL

February 2015

CASE EXAMPLE #2

- I joined City of Flagstaff in 2007 -

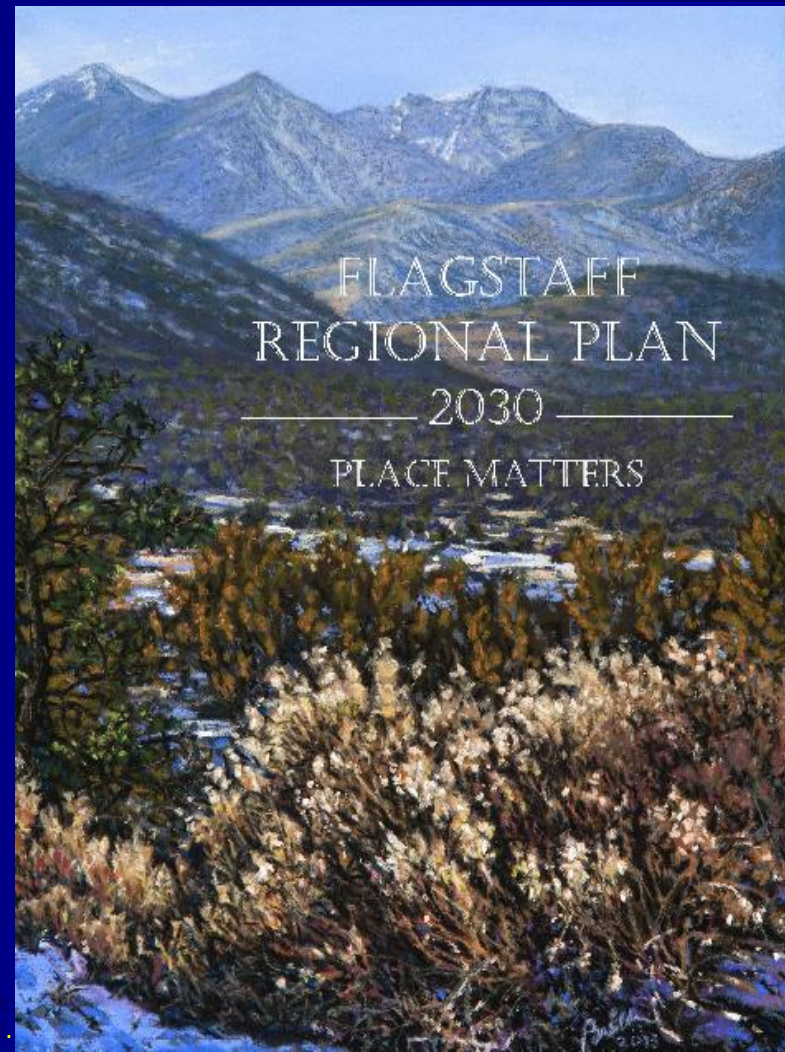


Steps Flagstaff has taken to Bridge the Gap between Land Use Planning and Water Supply

Updated General Plan (Regional Plan)

*Regional Plan includes both a the City
and a portion of the County*

Voter Approved May 2014



City Specific Water Policies

UTILITIES INTEGRATED MASTER PLAN

Principles of Sound Water Management
Water Policies Chapter



April 1, 2014
City of Flagstaff - Utilities Division

Adopted April 2014

Chapters

Finance

Water Resource Management

Reclaimed Water

Water Conservation

Stormwater

Infrastructure

Master Planning

Regional Cooperation &
Leadership

Water Security



Water Supplies = Growth

Connectivity between growth & 100-year water supply

Adequate Water Supply Program: In 2009, City Council authorized City to apply to Arizona Department of Water Resources

Planning & Water Services Staff communication

Tracking of Preliminary & Final Plats v. Water Supply

JANICE K. BREWER

Governor



SANDRA A. FABRITZ-WHITNEY

Director

ARIZONA DEPARTMENT OF WATER RESOURCES

3550 North Central Avenue, Second Floor
PHOENIX, ARIZONA 85012-2105
(602) 771-8500

April 1, 2013

Bradley Hill, R.G.
City of Flagstaff
211 W. Aspen Ave.
Flagstaff, AZ 86001

Re: Designation of Adequate Water Supply (DWR No. 41-900002.0002) City of Flagstaff

Dear Mr. Hill:

I am pleased to inform you that the Department of Water Resources has approved the application for a Designation of Adequate Water Supply for the City of Flagstaff (Flagstaff). We have enclosed the formal Decision and Order. The Decision and Order includes an itemization of Flagstaff's responsibilities in maintaining the Designation.

Flagstaff's status as a designated water provider demonstrates that Flagstaff is taking a long-term perspective in managing water resources. Flagstaff's commitment to long term planning represents a major contribution to the State's water management goal.

If you have any questions regarding these documents, please contact me at (602) 771-8615.

Sincerely,

Andrew J. Craddock, Manager
Recharge, Assured & Adequate Water Supply Programs

AJC/rbo

UTILITIES INTEGRATED MASTER PLAN

Principles of Sound Water Management
Water Policies Chapter



April 1, 2014
City of Flagstaff - Utilities Division

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UTILITIES INTEGRATED MASTER PLAN

Water Resources Chapter
Water History, Demand, Existing Supplies
and Future Water Needs and Recommended Options

DRAFT



February 15, 2011
City of Flagstaff - Utilities Division



Utilities Master Planning

Water Resources

Water System Infrastructure

Wastewater System
Infrastructure

Strategic Technology

Stormwater

*Land Uses within
General Plan as the base
for growth projections*



City of Flagstaff
Utilities Division

SCADA Master Plan

Presented By:

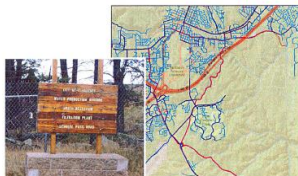


CITY OF FLAGSTAFF WATER INFRASTRUCTURE MASTER PLAN FINAL REPORT

September 2014



202 E. Earle Drive, Suite 110
Phoenix, Arizona 85012
(602) 629-0206



Flagstaff Utilities Integrated Master Plan



Flagstaff Sewer Master Plan

Prepared for
City of Flagstaff
Flagstaff, Arizona
March 2015

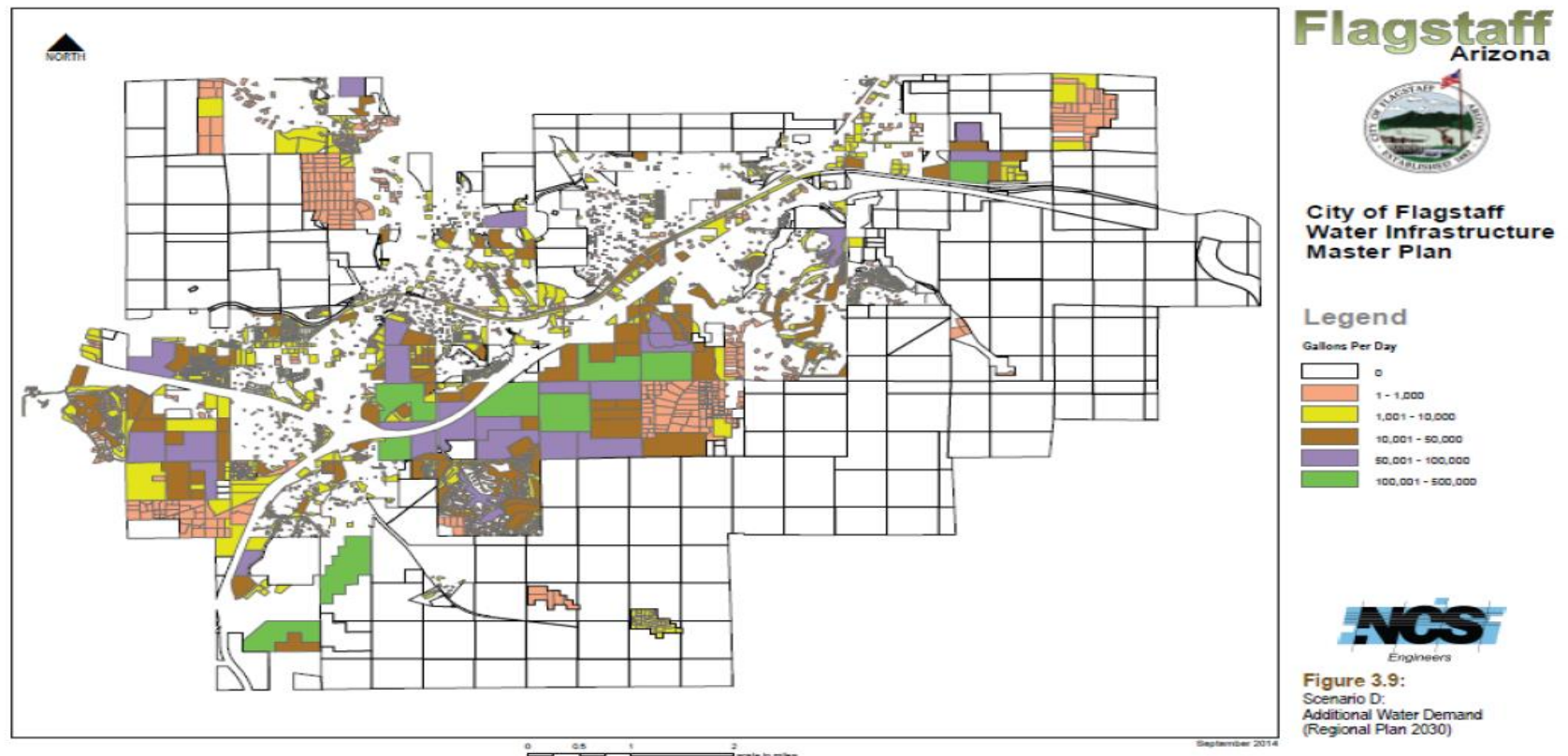


Undeveloped Lands & their identified Land Use

converted to gallons per day

City of Flagstaff Water Infrastructure Master Plan

Figure 1: Scenario D (High Density Scenario) Additional Water Demand



Water System Capacity Allocation Policy



for new development

Purpose: avoid exceeding flow capacity of pipeline & water production

Establishes a **tracking & commitment of Peak Day** / allocated on a 1st come: 1st served principle

Create Benchmarks when City reaches:

80% of committed Peak Day demands identify new infrastructure needs

85% of committed Peak Day demands begin construction of infrastructure

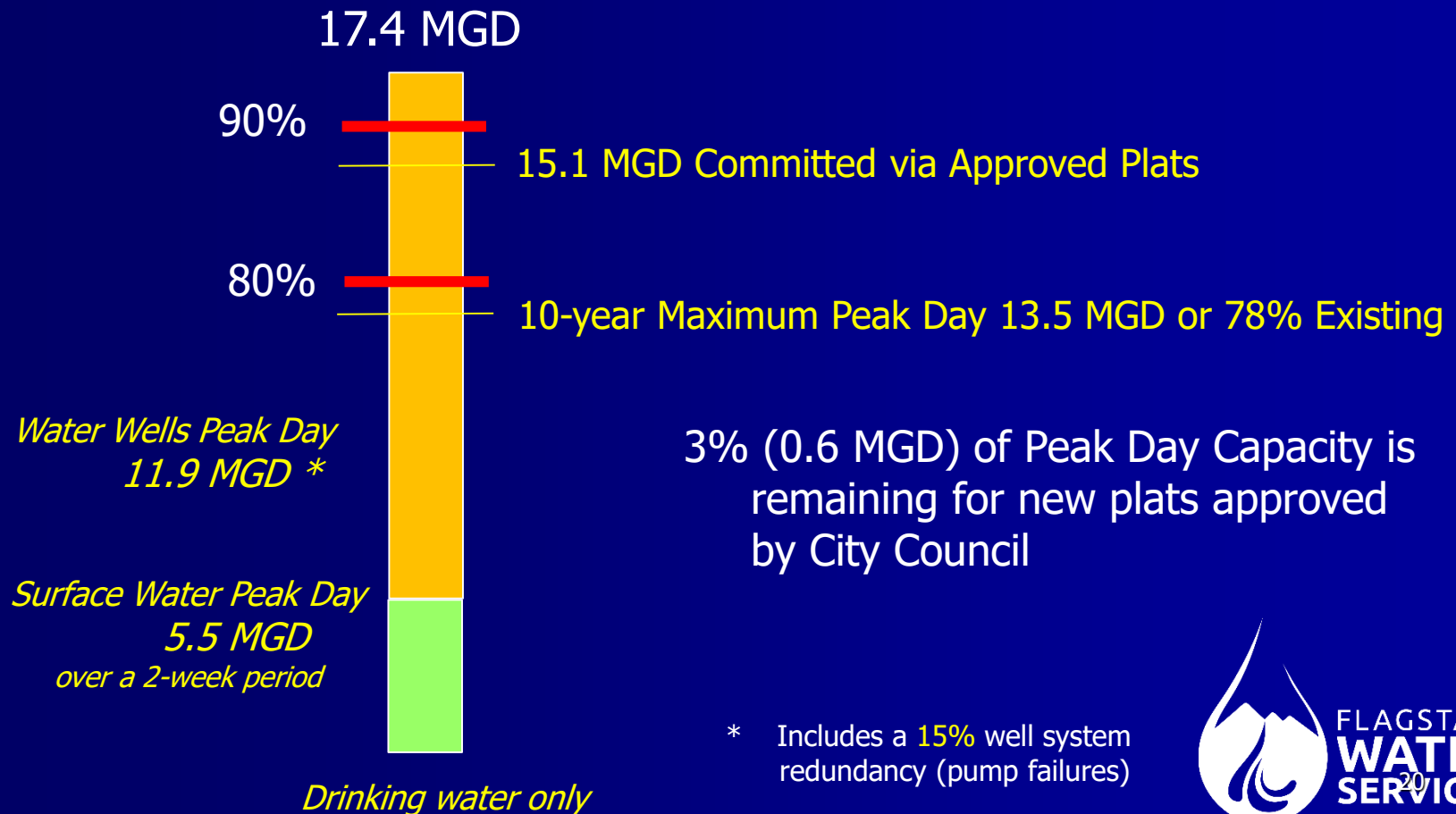
95% of committed Peak Day demands construction completed





Water Production

Peak Day Demands





Connecting Land Use Planning with Water: *tools for consideration*



Create Water Policies

Land Use Management - Economic Value per Gallon

Outside an AMA

Consider linking growth, land use & water supply

Link water supply infrastructure to growth

Establishing defensible triggers

McMillan Bank & Hotel- 1900

